

**REMARKS**

Claims 1-12 are pending in the present application and are rejected. Claims 1-12 are herein amended. No new matter has been added.

**Amendments to the Specification**

Applicants noted two errors in the specification, and herein amend the specification to correct these errors. Page 11, line 3 is amended to state "As shown in Figure 4...." Also on page 11, claim 4 is amended to state "...magnetic poles 200 220a..." No new matter has been added.

**Applicants' Response to Claim Rejections under 35 U.S.C. §103**

**Claims 1-3 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fukuyama et al. (U.S. Patent No. 6,121,704) in view of Boyd, Jr. et al. (U.S. Patent No. 6,223,416) and Watanabe et al. (U.S. Patent No. 5,914,548).**

It is the position of the Office Action that Fukuyama discloses the embodiment as claimed, with the exception of (i) that each of the stators contains a core mounted outside of the case and a magnetic core wound around the core, and (ii) at least an end face of the core constituting a magnetic pole is formed of non-laminated ferromagnetic substance and exposed to the inner surface of the case so as to form a part of the inner wall of the case. The Office Action relies on Boyd to teach (i) and relies on Watanabe to teach (ii).

Fukuyama is directed at a magnetic bearing. The Office Action's discussion of Fukuyama is limited to the embodiment of Figure 1. The magnetic bearing includes a shell 101

and a rotation shaft 102. A motor stator 103 disposed on the shell 101 and a motor rotor 104 disposed on the rotation shaft 102 act to rotate the rotation shaft. Furthermore, the magnetic bearing includes EM attraction stators 105a and 105b disposed on the shell 101 (via an unexplained element 112), while EM attraction rotors 106a and 106b are disposed on the rotation shaft 102. The stators 105a/105b and rotors 106a/106b act to suspend the rotation shaft 102 in position. Finally, the magnetic bearing includes a thrust plate 107 disposed on the rotation shaft 102, while EM attraction stators 108 are disposed on projections from the shell 101. The stators 108 act to move the thrust plate 107 in a linear direction.

Boyd is directed at a method of manufacture of a dynamoelectric machine. As illustrated in Figures 1-3, a two-speed induction motor 20 includes first end frame 50 and second end frame 52, with stator 22 disposed therebetween, as well as rotor assembly 36. The stator 22 includes core 24 and windings 27, which are wound approximately perpendicularly to the major axis of the individual stator laminations 26. It is noted that each of the first and second end frames 50/51 include feet 96, which conform to the shape of the core 24. Keys 64 are disposed in preformed channels 66 in the core 24, and fold over at ends 68 in order to hold the two-speed induction motor together.

Watanabe is directed at a sealed actuator. As illustrated in Figure 1, the sealed actuator 10 includes a motor stator 11 and a motor rotor 12. A magnetic pole 16 is disposed in a recessed portion of motor rotor 12. A magnetic pole 15 is disposed on the motor stator 11 such that the surface of the magnetic pole 15 which opposes magnetic pole 16 is approximately even with the surfaces of housings 23 and 24.

The Office Action alleges that it would have been obvious to modify Fukuyama by making the core be mounted outside the case, as allegedly disclosed by Boyd. The Office Action states that the reason for this would have been "to provide the capability of being form vacuum condition."

Applicants respectfully submit that the combination of references does not disclose or suggest the embodiment as claimed. The Office Action alleges that the core 24 of Boyd is "mounted outside the case." However, Applicants respectfully submit that Boyd does not disclose this. Rather, the core 24 is the same size as the first and second end frames 50 and 51. No part of the core 24 is mounted outside the first and second end frames 50 and 51. See Figures 1-3 of Boyd. Accordingly, Applicants respectfully submit that the combination of cited art does not disclose the embodiment as claimed and thus the rejection should be withdrawn.

Furthermore, the Office Action indicates that Watanabe that at least one end face of the core constituting magnetic pole is formed of non-laminated ferromagnetic substance and that the non-laminated ferromagnetic substance is exposed to the inner surface of the case so as to form a part of the inner wall of the case. However, Applicants respectfully submit that Watanabe does not disclose these features.

Watanabe, a cylindrical partition wall 33 which is disposed in a clearance between the motor stator 11 and the motor rotor 12 is disclosed. Further, ring-shaped reinforcing members 40 and 41 made of a nonmagnetic metal are attached to a portion of the partition wall 33 corresponding to the motor stator 11 and the resolver 26. As Watanabe teaches, the cylindrical partition wall 33 and the reinforcing members 40 and 41 are made of nonmagnetic metal. On the

other hand, in the claimed embodiments, end faces of the core are made of non-laminated ferromagnetic substance. This non-laminated ferromagnetic substance is completely different in the quality of the material, as compared to that in Watanabe.

Additionally, in the claimed embodiments, at least one end face of the core constituting magnetic pole is formed of non-laminated ferromagnetic substance. The non-laminated ferromagnetic substance is exposed to the inner surface of the case so as to form a part of the inner wall of the case. Such a configuration is not disclosed in any of Fukuyama, Boyd and Watanabe. Therefore, for at least the above reasons, Applicants respectfully submit that claims 1-3 are patentable over the combination of cited art. Favorable reconsideration is respectfully requested.

**Claims 4, 5 and 11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fukuyama in view of Wehde et al. (U.S. Patent No. 4,082,376), Boyd and Watanabe.**

It is the position of the Office Action that Fukuyama discloses the embodiment as claimed, with the exception of (i) that the magnetic bearing is equipped with a bearing electromagnet and a bearing ferromagnetic portion provided to a site facing a magnetic pole of the bearing electromagnet in the mover, (ii) that the bearing electromagnet contains a core mounted at the outside of the case and a magnetic coil wound around the core, (iii) that at least an end face constituting the magnetic pole is formed of non-laminate ferromagnetic substance, and is exposed to the inner surface of the case so as to form a part of the inner wall of the case.

The Office Action relies on Wehde to teach (i), on Boyd to teach (ii) and on Watanabe to teach (iii).

Wehde is directed at a bearing arrangement. In the background, Watanabe discusses electromagnets with pole rings on a stator, and ferromagnetic pole rings on the rotor adjacent thereto.

With respect to claim 4, Applicants respectfully reiterate the above remarks regarding Boyd. Additionally, claim 4 recites that "the magnetic bearing is equipped with a bearing electromagnet and a bearing ferromagnetic portion provided to a site facing a magnetic pole of the bearing electromagnet in the mover." Thus, claim 4 recites that the ferromagnetic portion is disposed on the stator. However, Watanabe states that "magnetic bearings include electromagnets with pole rings arranged on the stator, and ferromagnetic pole rings lying on the rotor adjacent to them." Thus, Watanabe discloses that the ferromagnetic portion is disposed on the rotor. As such, Applicants respectfully submit that the combination of cited art does not disclose the embodiment as recited by claim 4 for at least this reason.

As to claims 5 and 11, Applicants respectfully submit that these claims are patentable at least due to their dependency on claim 4, which Applicants submit is patentable for at least the above reasons. Favorable reconsideration is respectfully requested.

**Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Fukuyama in view of Wehde, Boyd and Watanabe, and in further view of Amemiya et al. (U.S. Patent No. 4,697,114).**

It is the position of the Office Action that the combination of Fukuyama, Wehde, Boyd and Watanabe discloses the embodiments as claimed, with the exception of teaching a non-magnetic substance being interposed between the rotor and the bearing ferromagnetic portion. The Office Action relies on Amemiya to provide this teaching.

In response, Applicants respectfully submit that claim 6 is patentable at least due to its indirect dependency on claim 4, which Applicants submit is patentable for at least the reasons discussed above. Favorable reconsideration is respectfully requested.

**Claims 7 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fukuyama in view of Wehde, Boyd and Watanabe, and in further view of Habermann (U.S. Patent No. 4,353,602) and Ogino et al. (U.S. Patent Application Publication No. 2004/0112800).**

It is the position of the Office Action that the combination of Fukuyama, Wehde, Boyd and Watanabe disclose the embodiments as claimed, with the exception of teaching (i) that the bearing electromagnet contains a thrust electromagnet for supporting the rotor in the axial direction and a radial electromagnet for supporting the rotor in the radial direction, and (ii) that the bearing ferromagnetic portion contains a thrust ferromagnetic portion provided to a site facing a magnetic pole of the thrust electromagnet, and a radial ferromagnetic portion provided to a site facing a magnetic pole of the radial electromagnet. The Office Action relies on Habermann to teach the thrust electromagnet and on Ogino to teach the radial electromagnet.

In response, Applicants respectfully submit that claim 7 and 8 are patentable at least due to their indirect dependency on claim 4, which Applicants submit is patentable for at least the reasons discussed above. Favorable reconsideration is respectfully requested.

**Claims 9 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fukuyama in view of Wehde, Boyd, Watanabe, Habermann and Ogino, and in further view of Kuwabara (JP2002-218684).**

It is the position of the Office Action that the combination of Fukuyama, Wehde, Boyd, Watanabe, Habermann and Ogino disclose the embodiment as claimed, with the exception of disclosing a rotor containing a rotor portion having plural magnetic poles projecting in the radial direction and a rotational shaft portion that is coaxial with the rotor portion and extends in the axial direction, the rotational shaft being formed of a non-magnetic substance. The Office Action relies on Kuwabara provide this teaching.

In response, Applicants respectfully submit that claim 9 and 10 are patentable at least due to their indirect dependency on claim 4, which Applicants submit is patentable for at least the reasons discussed above. Favorable reconsideration is respectfully requested.

**Claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over Fukuyama in view of Wehde, Boyd and Watanabe, and in further view of Steinmeyer (U.S. Patent Application Publication No. 2004/0021382).**

It is the position of the Office Action that the combination of Fukuyama, Wehde, Boyd and Watanabe disclose the embodiments as claimed, with the exception of teaching a bearing ferromagnetic portion formed of aggregated non-laminate ferromagnetic substance. The Office Action relies on Steinmeyer to provide this teaching.

Steinmeyer is directed at a magnetic bearing for suspending a rotating shaft using high TC superconducting material. As discussed in paragraph [0031], rotor shaft 3 can be made of a non-magnetic material such as steel.

In response, Applicants respectfully submit that the combination of cited art does not disclose the embodiment as claimed. Claim 12 recites that "the bearing ferromagnetic portion is formed of an aggregated non-laminate **ferromagnetic** substance." However, the rotor shaft 3 is made of a **non-magnetic** material. Thus, Applicants respectfully submit that the combination of cited art does not disclose or suggest the embodiment of claim 12. Additionally, Applicants respectfully submit that claim 12 is patentable due to its dependency on claim 4, which Applicants submit is patentable for at least the above reasons. Favorable reconsideration is respectfully requested.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.



Application No.: 10/575,681  
Art Unit: 2834

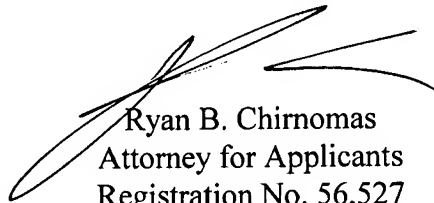
Amendment  
Attorney Docket No.: 062408

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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